

REPUBLIC OF THE PHILIPPINES

EDICT OF GOVERNMENT

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PNS/PAES 134 (2005) (English): Agricultural
Machinery -- Furrower -- Specifications



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PHILIPPINE NATIONAL STANDARD

**PNS/PAES 134:2005
(PAES published 2004)
ICS 65.060**

Agricultural Machinery – Furrower – Specifications



BUREAU OF PRODUCT STANDARDS

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National Foreword

This Philippine Agricultural Engineering Standards PAES 134:2004, Agricultural Machinery – Furrower – Specifications was approved for adoption as a Philippine National Standard by the Bureau of Product Standards upon the recommendation of the Agricultural Machinery Testing and Evaluation Center.

Foreword

The formulation of this National Standard was initiated by the Agricultural Machinery Testing and Evaluation Center (AMTEC) with support from the Department of Agriculture (DA).

This standard has been technically prepared in accordance with BPS Directives Part 3:2003 – Rules for the Structure and Drafting of International Standards.

The word “shall” is used to indicate mandatory requirements to conform to the standard.

The word “should” is used to indicate that among several possibilities one is recommended as particularly suitable without mentioning or excluding others.

In the preparation of this standard, the following document/publication was considered:

AMTEC Test Reports on Furrowers. 2003-2004.

F. Buckingham. *Fundamentals of Machine Operation – Tillage*. Deere and Company, Moline, Illinois. 1976.

Republic Act No. 7394 otherwise known as “The Consumer Act of the Philippines” enacted on July 22, 1991.

Agricultural Machinery – Furrower – Specifications**1 Scope**

This standard specifies the requirements for furrowers used with four-wheel tractors.

2 References

The following normative documents contain provisions, which through reference in this text, constitute provisions of this National Standard:

PAES 102:2000, Agricultural Machinery – Operator’s Manual – Content and Presentation

PAES 103:2000, Agricultural Machinery – Method of Sampling

PAES 118:2001, Agricultural Machinery – Four-Wheel Tractor – Specifications

PAES 135:2004, Agricultural Machinery – Furrower – Methods of Test

3 Definitions

For the purpose of this standard, the following definitions shall apply:

3.1

furrower

lister

ridger

bedder

tillage implement resembling a double moldboard, one left wing and one right wing (see Figure 1), used to make ridges and beds for planting and trenches for irrigation and drainage purposes

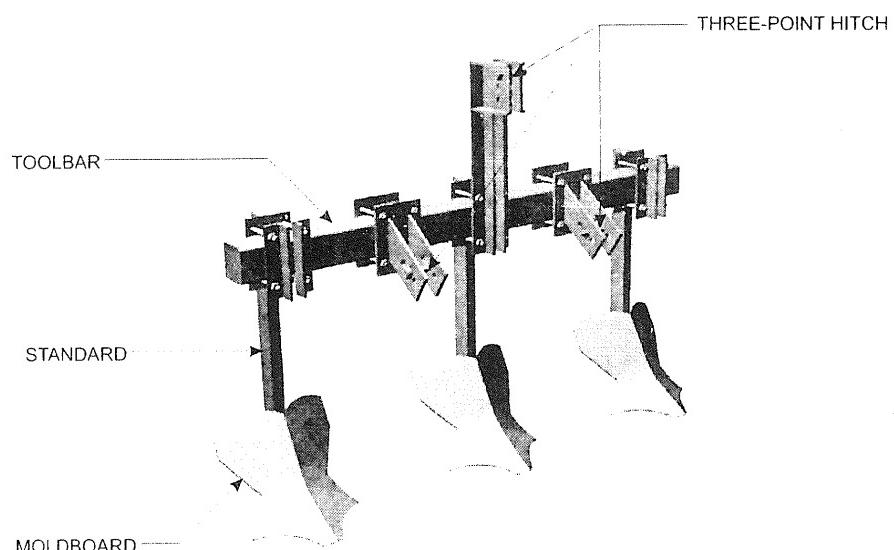


Figure 1 – Tractor-Mounted Furrower

3.2**furrower bottom****lister bottom**

working part of the furrower which includes the share and moldboard

3.2.1**blackland bottom**

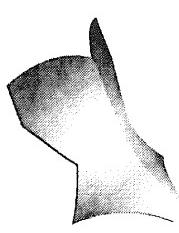
bottom that has smaller moldboards and are designed for better scouring in sticky soils (see Figure 2a)

3.2.2**general-purpose bottom**

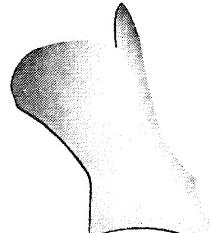
bottom that has wider moldboards that works well at fairly high speeds in most soil conditions (see Figure 2b)

3.2.3**hard-ground bottom**

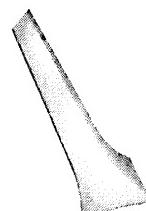
bottom that has very small share and moldboard designed for use in combination with disc openers to open hard-baked soils (see Figure 2c)



a) Blackland



b) General-purpose



c) Hard-ground

Figure 2 – Types of Furrower Bottoms**3.3****hitch**

part of an implement designed to connect to the tractor

3.4**moldboard**

part of the furrower which lifts, inverts and throws laterally the layer of soil (furrow slice) in opposite directions

3.5**row marker**

toolbar mounted device used to guide the operator in setting the furrower for the next pass to ensure uniform furrow spacing

3.6**share**

part of the furrower that penetrates the soil and cuts the furrow slice horizontally

3.7

standard

beam

leg

upright support which connects the furrower bottom to a toolbar

3.8

toolbar

structure to which the standards are mounted

4 Size

4.1 The size of the furrower bottom shall be determined by measuring the horizontal distance from the left to the right wings of share. (see Figure 2)

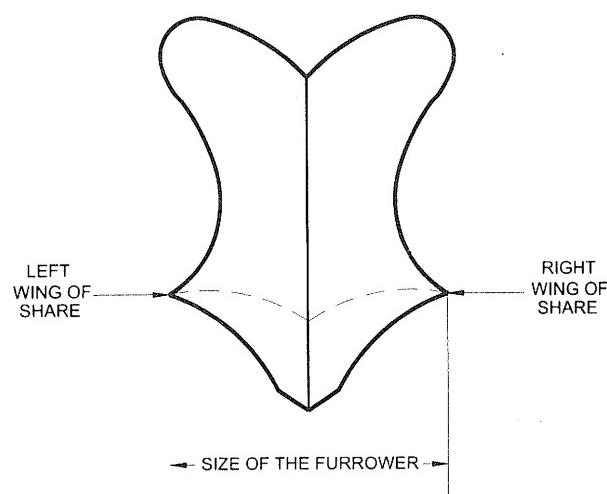


Figure 2 – Size of the Furrower Bottom

4.1.1 The number of furrower bottoms shall depend on crop's row spacing and the tractor's wheel tread adjustment.

4.2 Standard

The height of the standards shall vary according to the crop requirement but shall not exceed 500 mm.

4.3 Toolbar

4.3.1 The length of toolbar shall vary according to crop's row spacing and the tractor's wheel tread adjustment.

4.3.2 The number of toolbars may be one or two depending on the manufacturer's design.

5 Materials of Construction

5.1.1 Cast iron and/or mild steel shall be used in the manufacture of the moldboard, standard and toolbar.

5.1.2 Carbon steel with at least 80% carbon content (e.g. AISI 1080) or alloy steel with at least 0.0005% boron content shall be used in the manufacture of the share.

6 Performance Requirements

6.1 The maximum width and depth of cuts of the furrower shall be attained at the recommended power range specified by the manufacturer.

7 Other Requirements

7.1 The hitch of the furrower shall be compatible with the three-point linkage of the four-wheel tractor as specified in PAES 118.

7.2 The furrower shall be easy to hitch to and unhitch from the tractor as well as adjust the spacing between rows.

8 Workmanship and Finish

8.1 The furrower shall be free from manufacturing defects such as sharp edges and surfaces that may be detrimental to the operator.

8.2 Except for furrower bottoms, other uncoated metallic surfaces shall be free from rust and shall be painted properly.

9 Warranty for Construction and Durability

9.1 Warranty against defective materials and workmanship shall be provided for parts and services except for normal wear and tear of consumable maintenance parts within six months from the purchase of the furrower.

9.2 The construction shall be rigid and durable without breakdown of its major components within six months from purchase by the first buyer.

10 Maintenance and Operation

10.1 A set of manufacturer's standard tools required for maintenance shall be provided.

10.2 An operator's manual which conforms to PAES 102 shall be provided.

10.3 The required power to pull the furrower shall be included in the operator's manual or brochure.

11 Sampling

The furrower shall be sampled for testing in accordance with PAES 103.

12 Testing

The sampled furrower shall be tested in accordance with PAES 135.

13 Marking and Labeling

13.1 Each furrower shall be marked in English with the following information using a plate, stencil or by directly punching it at the most conspicuous place:

13.1.1 Registered trademark of the manufacturer

13.1.2 Brand

13.1.3 Model

13.1.4 Size

13.1.5 Serial number

13.1.6 Production date (optional)

13.1.7 Name and address of manufacturer

13.1.8 Name and address of the importer, if imported

13.1.9 Country of manufacture (if imported) / "Made in the Philippines" (if manufactured in the Philippines)

13.2 Safety/precautionary markings shall be provided when appropriate. Markings shall be stated in English and Filipino and shall be printed in red color with a white background.

13.3 The markings shall have a durable bond with the base surface material.

13.4 The markings shall be weather resistant and under normal cleaning procedures, it shall not fade, discolor, crack or blister and shall remain legible.